1990
ELECTRIC POWER EQUIPMENT REPORT

A Report of the Statistics Department of the
EDISON ELECTRIC INSTITUTE
The association of electric companies

Power Supply History: 1986-90
Orders Placed with Domestic & Foreign Manufacturers
Equipment Shipment and Installation Schedules

A REPORT OF THE STATISTICS DEPARTMENT OF THE EDISON ELECTRIC INSTITUTE

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--Domestic--

ABB Combustion Engineering Systems
Babcock & Wilcox Co.
B & W Nuclear Technologies
Cooper-Bessemer Reciprocating
Dresser-Rand
Elliott Company
Fairbanks Morse Engine Div., Colt Industries
Foster Wheeler Energy Corp.
General Electric Co.
Imo Industries, Inc.
Kuhlman Corporation
McGraw-Edison Power Systems
North American Transformer
Riley Consolidated
Siemens Energy & Automation
Siemens Power Corporation
Stewart & Stevenson
RTE Corporation
Turbo Power & Marine
Voith Hydro, Inc.
Westinghouse ABB Power T&D Co.
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--Foreign--

American Elin Corporation
ASEA Brown Boveri, Inc.
Canadian General Electric Co., Ltd.
English Electric Corporation
Fuji Electric Power Co., Ltd.
Hitachi, Ltd.
John Brown Engineering, Ltd.
Mitshubishi Heavy Industries, Ltd.
NEI Parsons, Ltd.
Tokyo Shibaura Electric Co., Ltd.

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FOREWORD

This 1990 ELECTRIC POWER EQUIPMENT REPORT is a transitional issue, replacing the former ELECTRIC POWER ANNUAL REPORT. It presents information concerning electric power supply, addition of new electric generating facilities, and orders for and shipments of heavy electric power equipment in the United States as of the end of 1990.

The report is divided into two parts. Part I covers the history of electric power supply from 1986 through 1990. Part II provides information on the planned domestic manufacture and importation of heavy electric power equipment as of January 1, 1991.

The historical data from 1986 through 1990 present the peak load, capability installed to meet load, and energy requirements for these time periods. The electric power supply data shown in Part I of this report are derived from IE-411 reports for previous years submitted to the Department of Energy and to the North American Electric Reliability Council (NERC).

Data in this report represent the total electric utility industry of the contiguous U.S., including Investor-Owned systems and those of governmental agencies--Federal, Municipal and State & Local--and also Rural Electric Cooperatives.

The reported data include some industrial power installations whose operations are coordinated with the utility systems with which they are interconnected and which thereby contribute to the public supply. The data do not include any isolated industrial or institutional power installations.

Data pertaining to power system capabilities, peak loads, percent capacity margins, and energy requirements are presented for each of the nine reliability councils of NERC. Boundaries of the nine reliability councils are shown by the map on Page 41. The North American Electric Reliability Council encompasses essentially all utility systems in the United States and five Canadian provinces, but the data presented in this report cover only the systems in the contiguous United States.

Part II of this report presents the results of the annual survey on the ordering and scheduled shipment of heavy electric power equipment as of January 1, 1991, conducted by the Statistics Department of the Edison Electric Institute. Contributors to the survey include representatives of the electric utility industry throughout the contiguous United States, the nation's principal manufacturers of heavy electric power equipment, and those foreign manufacturers supplying electric generating equipment to U.S. electric utility systems.

DEFINITIONS AND METHODS OF SUMMARIZATION

INSTALLED CAPABILITY is the maximum load which a generating unit or a group of units can carry under specified conditions for a given period of time. Installed capability values are shown in the historical summer and winter tables.

CAPABILITY, as projected in this report, is equivalent to Planned Resources, defined by the North American Electric Reliability Council as the total installed generating capacity which is existing, presently under construction, or in various states of planning; plus scheduled capacity purchases, less scheduled capacity sales; less total generating capacity out of service in deactivated shutdown status. This capability must provide for the projected load plus scheduled maintenance, forced outages, system operating requirements, and any unforeseen load. The capabilities of all systems normally interconnected are based upon fully coordinated operation. Peak capability refers to the maximum capability, as defined above, at the approximate time and for the duration of the load referred to, that is, at the time of the summer peak load or the winter peak load. Regional capability, as reported herein, is the sum of the capabilities of the systems serving the region.

PEAK LOAD for a region may be either coincident or non-coincident. It is the sum of the actual or projected peak load of the electric utilities and any self-generating industrial facilities.

HISTORICAL AND PROJECTED INSTALLED MARGIN shown on the summer and winter tables represents the difference between installed capability and peak load. It is the margin available to replace generating equipment out of service due to planned scheduled maintenance, forced outages, and equipment deratings due to various causes. In addition, installed margin must provide an operating reserve to cover variations in peak load, to service unforeseen demand growth due to abnormal weather or unexpected levels of regional economic activity, and to regulate frequency and control transmission tie-line schedules.

PERCENT CAPACITY MARGIN is the installed margin divided by capability multiplied by 100.

LOAD FACTOR is the ratio of the megawatthour output supplied during a designated period to the output that would have occurred had the peak experienced during that period been constant throughout the period. For example, annual percent load factor is calculated by multiplying annual megawatthour requirements by 100 and dividing by the product of the annual peak load and the number of hours in a year (8,760 in normal years, 8,784 in leap years).

NERC U.S., as used in this publication, is equivalent to the lower forty-eight contiguous states; Alaska and Hawaii are omitted.

AVERAGE ANNUAL COMPOUND GROWTH RATES are calculated on a point-to-point basis, by taking the fourth root of the difference between the values for the first and fifth historical years in Tables 1, 2, and 4.

PART I.

ELECTRIC POWER SUPPLY 1986-1990

INSTALLATION OF NEW CAPACITY

CAPABILITIES, PEAK LOADS, MARGINS, AND ENERGY REQUIREMENTS

INDUSTRY PERFORMANCE IN 1990

During the year 1990 the electric utility systems of the contiguous United States put into operation 4,504 megawatts of new electric generating capacity. Table 5, which includes all units one megawatt capacity and larger, shows that 26 units with capability ratings aggregating 4,479 megawatts were thermal, and two units rated at 25 megawatts were hydraulic. Two of the thermal units were powered by nuclear fuel, and four were conventional steam turbine-generators. The individual generating units that make up the 4.5 thousand megawatts added during 1990 are identified in Table 6, page 12.

This newly added capacity contributed to the increase of the total capability, or load-carrying ability, of the U.S. electric utility systems to 685.1 thousand megawatts at the year end--an increase of 1.7 percent over the total at the end of 1989.

Of the total capability of 685.1 thousand megawatts, approximately 90 percent is thermal and the rest is hydraulic. During the past five years the total capability of the country's electric utility systems has increased at an average annual rate of 2.0 percent.

The combined 1990 summer peak load, shown in Table 1 of this report, was 545.5 thousand megawatts or 12.7 percent higher than the 1990/91 winter peak load. This is the twenty-seventh consecutive year during which the combined summer peak load exceeded the peak of the following winter. The point-to-point compound average annual increase between the 1986 and 1990 summer peak loads was 3.5 percent.

Table 2 shows that during 1990 the energy requirements for the contiguous United States amounted to 2.9 billion megawatthours--1.3 percent higher than the net energy for load in 1989. The point-to-point compound average annual increase between 1986 and 1990 for energy requirements was 3.3 percent.

Table 3 shows that the 1990 annual load factor for the sum of the nine regions was 60.4 percent.

Table 1 -- SUMMER INSTALLED CAPABILITIES, PEAK LOADS, MARGINS & PERCENT CAPACITY MARGINS (MW)

Region		1986	1987	1988	1989	1990	90/89 % Chg	Growth Rate 1986-1990*
NPCC	Installed Capability	51,879	52,531	53,913	54,622	56,146	2.8	2.0%
	Peak Load	39,026	42,651	45,245	45,031	44,116	-2.0	3.1%
	Installed Margin	12,853	9,880	8,668	9,591	12,030		
	Capacity Margin	24.8%	18.8%	16.1%	17.6%	21.4%		
MAAC	Installed Capability	47,626	48,553	48,669	49,829	51,279	2.9	1.9%
	Peak Load	37,527	40,526	43,110	41,614	42,613	2.4	3.2%
	Installed Margin	10,099	8,027	5,559	8,215	8,666		
	Capacity Margin	21.2%	16.5%	11.4%	16.5%	16.9%		
ECAR	Installed Capability	95,201	95,319	97,121	97,218	99,480	2.3	1.1%
	Peak Load	69,253	72,561	79,149	75,442	79,258	5.1	3.4%
	Installed Margin	25,948	22,758	17,972	21,776	20,222		
	Capacity Margin	27.3%	23.9%	18.5%	22.4%	20.3%		
SERC	Installed Capability	132,168	138,687	138,916	143,325	144,281	0.7	2.2%
	Peak Load	104,328	109,798	115,168	117,051	121,149	3.5	3.8%
	Installed Margin	27,840	28,889	23,748	26,274	23,132		
	Capacity Margin	21.1%	20.8%	17.1%	18.3%	16.0%		
MAIN	Installed Capability	45,351	44,805	49,336	49,373	49,184	-0.4	2.0%
	Peak Load	35,968	37,458	41,139	39,460	40,740	3.2	3.2%
	Installed Margin	9,383	7,347	8,197	9,913	8,444		
	Capacity Margin	20.7%	16.4%	16.6%	20.1%	17.2%		
SPP	Installed Capability	65,102	66,342	66,221	66,625	66,833	0.3	0.7%
	Peak Load	47,532	47,723	49,356	49,439	52,541	6.3	2.5%
	Installed Margin	17,570	18,619	16,865	17,186	14,292		
	Capacity Margin	27.0%	28.1%	25.5%	25.8%	21.4%		
ERCOT	Installed Capability	43,386	47,476	49,227	51,927	54,114	4.2	5.7%
	Peak Load	39,140	39,339	40,843	40,402	42,737	5.8	2.2%
	Installed Margin	4,246	8,137	8,384	11,525	11,377		
	Capacity Margin	9.8%	17.1%	17.0%	22.2%	21.0%		
MAPP	Installed Capability	28,438	28,586	30,775	30,864	32,164	4.2	3.1%
	Peak Load	21,245	23,162	24,899	24,336	24,994	2.7	4.1%
	Installed Margin	7,193	5,424	5,876	6,528	7,170		
	Capacity Margin	25.3%	19.0%	19.1%	21.2%	22.3%		
WSCC	Installed Capability	124,140	125,819	127,402	129,533	131,610	1.6	1.5%
	Peak Load	82,301	82,967	90,551	90,657	97,389	7.4	4.3%
	Installed Margin	41,839	42,852	36,851	38,876	34,221		
	Capacity Margin	33.7%	34.1%	28.9%	30.0%	26.0%		
NERC UNITED STATES**	Installed Capability	633,291	648,118	661,580	673,316	685,091	1.7	2.0%
	Peak Load	476,320	496,185	529,460	523,432	545,537	4.2	3.5%
	Installed Margin	156,971	151,933	132,120	149,884	139,554		
	Capacity Margin	24.8%	23.4%	20.0%	22.3%	20.4%		

* Average annual compound growth rate from 1986 to 1990.

** U.S. totals are not meaningful and should not be used for policy purposes.

NOTE: For definitions of terms see page 4.

ANNUAL NET ENERGY FOR LOAD AND ANNUAL LOAD FACTORS, 1986-1990

Table 2 -- ANNUAL NET ENERGY FOR LOAD (Megawatthours in Thousands)

Region	1986	1987	1988	1989	1990	90/89 Incr.	Growth Rate 1986-1990*
NPCC	227,865	239,063	250,132	253,866	250,681	-1.3%	2.4%
MAAC	197,056	207,007	218,636	223,922	221,099	-1.3	2.9
ECAR	390,245	408,739	429,198	439,832	442,507	0.6	3.2
SERC	545,409	573,735	593,948	623,230	627,707	0.7	3.6
MAIN	177,190	181,972	194,101	194,535	197,326	1.4	2.7
SPP	216,501	228,260	237,179	243,805	252,037	3.4	3.9
ERCOT	190,796	195,400	201,472	207,304	209,789	1.2	2.4
MAPP	106,824	113,063	121,737	122,982	127,102	3.4	4.4
WSCC	480,218	496,293	522,455	540,498	558,248	3.3	3.8
NERC U.S.	2,532,104	2,643,532	2,768,858	2,849,974	2,886,496	-1.3%	3.3%

* Average annual compound growth rate from 1986 to 1990.

Table 3 -- ANNUAL PERCENT LOAD FACTOR

Region	1986	1987	1988	1989	1990
NPCC	66.7	64.0	62.9	64.4	64.9
MAAC	59.9	58.3	57.7	61.4	59.2
ECAR	64.3	64.3	61.7	66.6	63.7
SERC	59.7	59.7	58.7	60.8	59.1
MAIN	56.2	55.5	53.7	56.3	55.3
SPP	52.0	54.6	54.7	56.3	54.8
ERCOT	55.6	56.7	56.2	58.6	56.0
MAPP	57.4	55.7	55.7	57.7	58.1
WSCC	66.6	68.3	65.7	68.1	65.4
NERC U.S.	60.7	60.8	59.5	62.2	60.4

Table 4

CHANGES IN SCHEDULED OPERATION DATE OF NUCLEAR AND FOSSIL-FIRED STEAM TURBINE-GENERATORS
REMOVED FROM SCHEDULE AND DELAYED A YEAR OR MORE
BETWEEN JANUARY 1, 1990 AND JANUARY 1, 1991

Owner	Plant Name and Unit Number	Type*	Nameplate Capacity MW	Net Expected Capability MW	Scheduled Operation Date as of January 1, 1990	Scheduled Operation Date as of January 1, 1991
Long Island Lighting Co.	Shoreham No. 1	N	847	809	12-90	Removed
Total Nuclear Units Removed from Schedule		1 Unit	847	809		
Tennessee Valley Authority	Watts Bar No. 2	N	1,218	1,177	10-94	10-95
TU Electric	Comanche Peak No. 2	N	1,161	1,150	6-92	7-93
Total Nuclear Units Delayed One Year or More		2 Units	2,379	2,327		
Total Nuclear Units Removed from Schedule and Delayed		3 Units	3,226	3,136		
Total Fossil Units Removed from Schedule	None					
Public Service Co. of Colorado	Pawnee No. 2	T	508	485	4-98	2008
TU Electric	Forest Grove No. 1	T	727	750	4-97	4-99
TU Electric	Twin Oak No. 1	T	735	750	4-94	4-95
TU Electric	Twin Oak No. 2	T	735	750	4-95	4-96
Total Fossil Units Delayed One Year or More		4 Units	2,705	2,735		
Total Fossil Units Removed from Schedule and Delayed		4 Units	2,705	2,735		
Total Nuclear and Fossil Units Removed From Schedule and Delayed		7 Units	5,931	5,871		

* See explanation of codes on page 12.

ADDITIONS TO ELECTRIC GENERATING CAPABILITY BY REGION AND BY OWNERSHIP DURING 1990

Table 5 -- 1990 ADDITIONS TO ELECTRIC GENERATING CAPABILITY -- 1 MW or Larger

	THERMAL								HYDRAULIC					
	Steam Turbine-Generators				Combustion Turbine-Generators		Diesel Engine-Generators		Conventional		Pumped-Storage		Total	
	Nuclear		Conventional											
	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW
1990 ADDITIONS	2	2,205	4	1,057	19	1,211	1	6	2	25	-	-	28	4,504
ADDITIONS BY REGION														
NPCC	1	1,150	-	-	-	-	-	-	2	25	-	-	3	1,175
MAAC	1	1,055	-	-	3	188	-	-	-	-	-	-	4	1,243
ECAR	-	-	1	495	-	-	-	-	-	-	-	-	1	495
SERC	-	-	1	58	5	443	-	-	-	-	-	-	6	501
MAIN	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPP	-	-	-	-	2	92	1	6	-	-	-	-	3	98
ERCOT	-	-	1	144	6	390	-	-	-	-	-	-	7	534
MAPP	-	-	-	-	3	98	-	-	-	-	-	-	3	98
WSCC	-	-	1	360	-	-	-	-	-	-	-	-	1	360
ADDITIONS BY OWNERSHIP														
Investor-Owned	2	2,205	4	1,057	16	1,035	-	-	2	25	-	-	24	4,322
Federal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal	-	-	-	-	2	92	1	6	-	-	-	-	3	98
Cooperative	-	-	-	-	1	84	-	-	-	-	-	-	1	84
State and Local	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1990 Additions to Generating Capability And Schedule for 1990 as of Jan 1, 1990

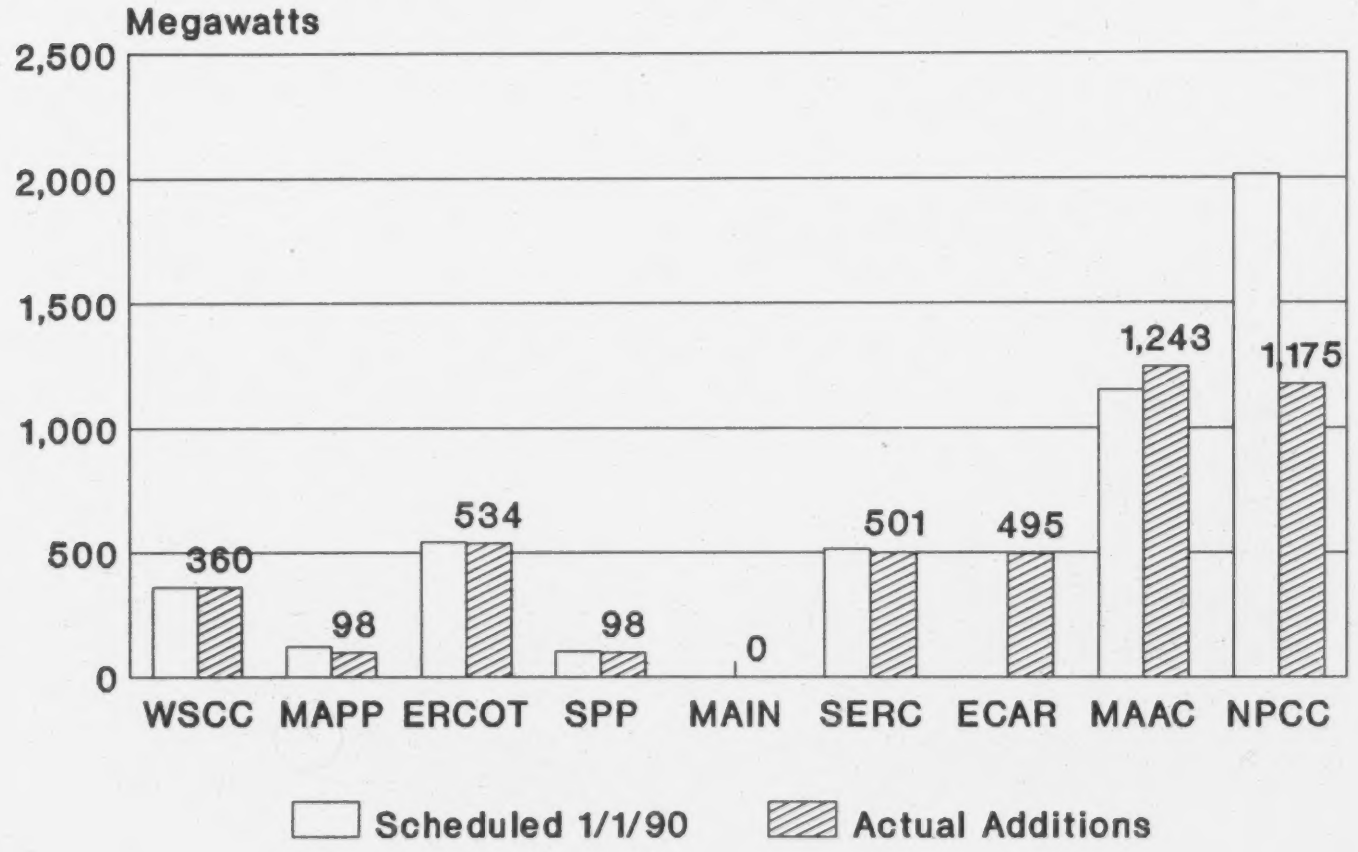


Table 6 -- 1990 ADDITIONS TO ELECTRIC GENERATING CAPABILITY BY U.S. ELECTRIC UTILITY SYSTEMS

Legend for Listing of Units Placed In Service, 1,000 kW and Larger

OWNERSHIP	CODE
Investor-Owned	I
Federal	F
Municipal	M
Cooperative	C
State & Local	SL

TYPE	CODE
Thermal	
Conventional steam turbine-generator	T
Nuclear steam turbine-generator	N
Combustion turbine-generator	G
Diesel engine-generator	D
Hydraulic	
Hydraulic turbine-generator	H
Pumped-Storage	
Pumped-storage turbine-generator	S
Reversible pumped-storage turbine-generator	R
Combined-Cycle	
Combustion turbine-generator for combined-cycle operation	GC
Conventional steam turbine-generator for combined-cycle operation	TC

+ Denotes multiple ownership of the unit. In such cases, the name of the participating utility system in whose service area the installation will be located is shown.

NOTE: Megawatts shown for individual generating units represent, in most cases, the net operating capability expected by the utility system; in other cases they represent the manufacturer's nameplate rating of the unit.

Table 6 -- 1990 ADDITIONS TO ELECTRIC GENERATING CAPABILITY BY U.S. ELECTRIC UTILITY SYSTEMS

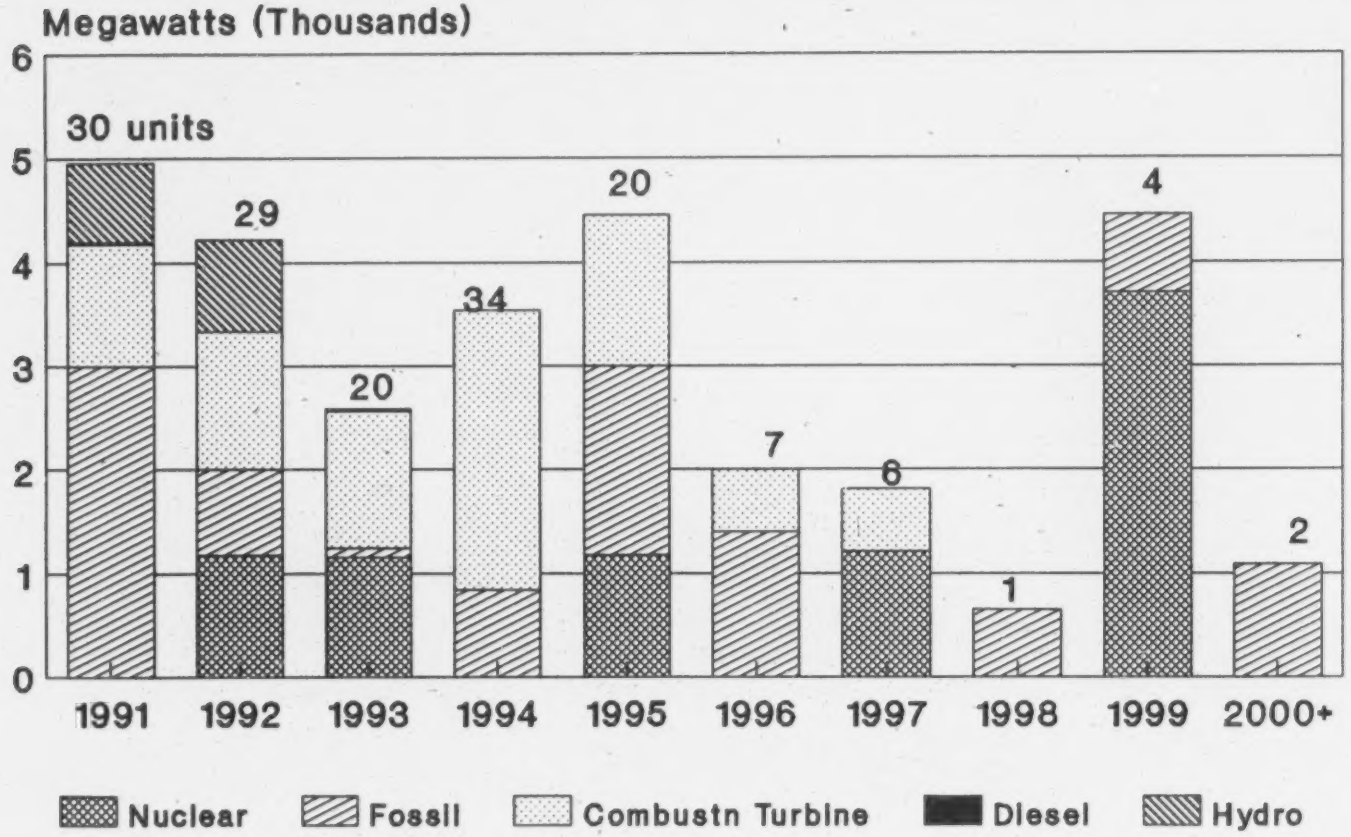
REGION		SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	MW of NET EXPECTED CAPABILITY
NPCC		Central Maine Power Co	Monty No 1	I	H		12
		Central Maine Power Co	Monty No 2	I	H		13
	+	Pub Serv New Hampshire	Seabrook No 1	I	N		1,150
MAAC		Atlantic Electric	Millville CT No 1	I	G		82
		Philadelphia Elec Co	Limerick No 2	I	N		1,055
		Pub Serv Elec & Gas	Essex No 9	I	G		22
		So Maryland El Coop	Chalk Point	C	G		84
ECAR		Louisville Gas & Elec Co	Trimble County No 1	I	T	Coal	495
SERC		Virginia Elec & Pwr Co	Chesterfield VA	I	G	Gas	127
		Virginia Elec & Pwr Co	Chesterfield No 7	I	T		58
		Virginia Elec & Pwr Co	Darbytown No 1	I	G	Oil	79
		Virginia Elec & Pwr Co	Darbytown No 2	I	G	Oil	79
		Virginia Elec & Pwr Co	Darbytown No 3	I	G	Oil	79
		Virginia Elec & Pwr Co	Darbytown No 4	I	G	Oil	79
SPP		Lubbock Texas	Tech No 1	M	G		21
		Marshall Missouri	No 10	M	D		6
		Springfield Missouri	Springfield GT No 1	M	G		71
ERCOT		Texas-New Mexico Pwr Co	TNP One No 1	I	T	Coal	144
		TU Electric	De Cordova CT No 1	I	G	Gas	65
		TU Electric	De Cordova CT No 2	I	G	Gas	65
		TU Electric	De Cordova CT No 3	I	G	Gas	65
		TU Electric	De Cordova CT No 4	I	G	Gas	65
		TU Electric	Permian Basin No 4	I	G	Gas	65
		TU Electric	Permian Basin No 5	I	G	Gas	65
MAPP		Iowa Power Inc	Pleasant Hill No 1	I	G		38
		Iowa Power Inc	Pleasant Hill No 2	I	G		38
		Iowa Southern Utils Co	Grinnell GT No 1	I	G		22
WSCC		Tucson Electric Power Co	Springerville No 2	I	T	Coal	360

28 Generating Units Were Added With Total Net Expected Capability of 4,504 MW

Table 7 -- SCHEDULED ADDITIONS TO ELECTRIC GENERATING CAPABILITY
BASED ON SCHEDULED DATES OF COMMERCIAL OPERATION AS OF JANUARY 1, 1991
In Terms of Net Expected Capability Ratings of the Units in Megawatts

	THERMAL								HYDRAULIC					
	Steam Turbine-Generators				Combustion Turbine-Generators		Diesel Engine-Generators		Conventional		Pumped-Storage		Total	
	Nuclear		Conventional											
	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW
TOTAL SCHEDULED	7	8,420	26	10,455	105	9,174	3	26	8	598	4	1,064	153	29,737
SCHEDULED ADDITIONS BY YEAR														
1991	-	-	5	3,001	18	1,170	3	26	2	230	2	532	30	4,959
1992	1	1,177	4	826	17	1,329	-	-	5	352	2	532	29	4,216
1993	1	1,150	1	90	17	1,326	-	-	1	16	-	-	20	2,582
1994	-	-	6	837	28	2,694	-	-	-	-	-	-	34	3,531
1995	1	1,177	4	1,826	15	1,447	-	-	-	-	-	-	20	4,450
1996	-	-	2	1,395	5	611	-	-	-	-	-	-	7	2,006
1997	1	1,213	-	-	5	597	-	-	-	-	-	-	6	1,810
1998	-	-	1	645	-	-	-	-	-	-	-	-	1	645
1999	3	3,703	1	750	-	-	-	-	-	-	-	-	4	4,453
2001	-	-	1	600	-	-	-	-	-	-	-	-	1	600
2008	-	-	1	485	-	-	-	-	-	-	-	-	1	485
SCHEDULED ADDITIONS BY REGION														
NPCC	-	-	4	420	9	783	-	-	-	-	-	-	13	1,203
MAAC	-	-	2	750	23	1,953	-	-	-	-	-	-	25	2,703
ECAR	-	-	2	1,900	14	1,005	-	-	-	-	-	-	16	2,905
SERC	4	4,780	8	2,538	35	3,217	2	20	-	-	4	1,064	53	11,619
MAIN	-	-	-	-	12	1,244	-	-	-	-	-	-	12	1,244
SPP	-	-	-	-	-	-	1	6	-	-	-	-	1	6
ERCOT	1	1,150	7	4,182	2	208	-	-	-	-	-	-	10	5,540
MAPP	-	-	-	-	8	601	-	-	-	-	-	-	8	601
WSCC	2	2,490	3	665	2	163	-	-	8	598	-	-	15	3,916
SCHEDULED ADDITIONS BY OWNERSHIP														
Investor-Owned	1	1,150	21	8,051	90	8,176	-	-	3	78	4	1,064	119	18,519
Federal	4	4,780	-	-	-	-	-	-	3	360	-	-	7	5,140
Municipal	-	-	1	498	11	588	3	26	-	-	-	-	15	1,112
Cooperative	-	-	3	1,386	3	308	-	-	-	-	-	-	6	1,694
State And Local	2	2,490	1	520	1	103	-	-	2	160	-	-	6	3,273

Scheduled Additions to Capability
By Prime Mover as of January 1, 1991



Three diesels (26 MW) scheduled for 1991

Table 8 -- SCHEDULED ADDITIONS TO ELECTRIC GENERATING CAPABILITY
Based on Scheduled Dates of Commercial Operation as of January 1, 1991

Legend for Listing of Units To Be Placed In Service, 1,000 kW and Larger

OWNERSHIP	CODE
Investor-Owned	I
Federal	F
Municipal	M
Cooperative	C
State & Local	SL

TYPE	CODE
Thermal	
Conventional steam turbine-generator	T
Nuclear steam turbine-generator	N
Combustion turbine-generator	G
Diesel engine-generator	D
Hydraulic	
Hydraulic turbine-generator	H
Pumped-Storage	
Pumped-storage turbine-generator	S
Reversible pumped-storage turbine-generator	R
Combined-Cycle	
Combustion turbine-generator for combined-cycle operation	GC
Conventional steam turbine-generator for combined-cycle operation	TC

+ Denotes multiple ownership of the unit. In such cases, the name of the participating utility system in whose service area the installation will be located is shown.

NOTE: Megawatts shown for individual generating units represent, in most cases, the net operating capability expected by the utility system; in other cases they represent the manufacturer's nameplate rating of the unit.

Table 8 -- SCHEDULED ADDITIONS TO GENERATING CAPABILITY AS OF JANUARY 1, 1991

REGION		SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	MW NET EXP CAPABILITY	SKED YEAR OPERATION
NPCC		Boston Edison Co	Edgar ST No 3	I	TC		40	1994
		Boston Edison Co	Edgar GT No 3	I	GC		100	1994
		Boston Edison Co	Edgar ST No 4	I	TC		40	1994
		Boston Edison Co	Edgar GT No 4	I	GC		100	1994
	+	Boston Edison Co	Ocean State Pwr No 1	I	TC	Gas	250	1991
	+	Boston Edison Co	Ocean State Pwr No 1	I	GC		80	1991
	+	Boston Edison Co	Ocean State Pwr No 2	I	GC		80	1991
		Con Edison Co of New York	Waterside	I	T	Oil/Gas	90	1992
		New England Power Co	Manchester St No 09	I	G		97	1995
		New England Power Co	Manchester St No 10	I	G		97	1995
		New England Power Co	Manchester St No 11	I	G		97	1995
		New York Power Authority	Holtsville	SL	G		103	1994
13 Units		Peabody Massachusetts	Waters River No 1	M	G		29	1991
MAAC		Atlantic Electric	Cumberland CT	I	G		78	1991
		Baltimore Gas & Electric Co	Brandon Shores No 2	I	T	Oil/Coal	640	1991
		Baltimore Gas & Electric Co	Perryman CT No 1	I	G		150	1994
		Baltimore Gas & Electric Co	Perryman CT No 2	I	G		150	1994
		Baltimore Gas & Electric Co	Perryman CT No 3	I	G		150	1996
		Baltimore Gas & Electric Co	Perryman CT No 4	I	G		150	1996
		Delmarva Power & Light Co	Hay Road No 3	I	G		105	1991
		Delmarva Power & Light Co	Hay Road No 4	I	TC		110	1994
		Dover Delaware	Parkland GT No 1	M	G		35	1991
		Potomac Electric Power Co	Chalk Point No 5	I	G		108	1991
		Potomac Electric Power Co	Chalk Point No 6	I	G		108	1991
		Potomac Electric Power Co	Chalk Point No 7	I	G		84	1991
		Potomac Electric Power Co	Chalk Point No 8	I	G		84	1991
		Potomac Electric Power Co	Station H No 1	I	G		138	1992
		Potomac Electric Power Co	Station H No 2	I	G		138	1993

Table 8 -- SCHEDULED ADDITIONS TO GENERATING CAPABILITY AS OF JANUARY 1, 1991 -- CONT'D

REGION		SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	MW NET EXP CAPABILITY	SKED YEAR OPERATION
MAAC		Potomac Electric Power Co	Station H No 3	I	G		138	1997
		Potomac Electric Power Co	Station H No 4	I	G		138	1999
		Public Service Electric & Gas Co	Burlington 13	I	G		25	1993
		Public Service Electric & Gas Co	Burlington 14	I	G		25	1993
		Public Service Electric & Gas Co	Burlington 15	I	G		25	1993
		Public Service Electric & Gas Co	Burlington 16	I	G		25	1993
		Public Service Electric & Gas Co	Burlington 17	I	G		25	1993
		Public Service Electric & Gas Co	Burlington 18	I	G		25	1993
		Public Service Electric & Gas Co	Burlington 19	I	G		25	1993
25 Units		Public Service Electric & Gas Co	Burlington 12	I	G		25	1993
ECAR		Anderson Indiana	Anderson No 1	M	G		38	1992
		Anderson Indiana	Anderson No 2	M	G		38	1992
		Cincinnati Gas & Electric Co	Woodsdale No 1	I	G		77	1993
		Cincinnati Gas & Electric Co	Woodsdale No 2	I	G		77	1992
		Cincinnati Gas & Electric Co	Woodsdale No 3	I	G		77	1992
		Cincinnati Gas & Electric Co	Woodsdale No 4	I	G		77	1992
		Cincinnati Gas & Electric Co	Woodsdale No 5	I	G		78	1992
		Cincinnati Gas & Electric Co	Woodsdale No 6	I	G		77	1992
	+	Cincinnati Gas & Electric Co	Zimmer	I	T	Coal	1,300	1991
		East Kentucky Power Coop	Smith No 1	C	T	Coal	600	2001
		PSI Energy Inc	Cayuga No 4	I	G		103	1993
		PSI Energy Inc	Cayuga No 5	I	G		103	1994
		PSI Energy Inc	Cayuga No 6	I	G		103	1995
		Richmond Indiana	Richmond No 1	M	G		38	1991
		Richmond Indiana	Richmond No 2	M	G		38	1991
16 Units		Southern Indiana Gas & Elec Co	Brown GT No 1	I	G		80	1991

Table 8 -- SCHEDULED ADDITIONS TO GENERATING CAPABILITY AS OF JANUARY 1, 1991 -- CONT'D

REGION	SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	MW NET EXP CAPABILITY	SKED YEAR OPERATION
SERC	Alabama Electric Coop	Mcwilliams No 4	C	G		100	1994
	Alabama Power Co	Miller No 4	I	T	Coal	667	1991
	Duke Power Co	Bad Creek No 1	I	R		266	1991
	Duke Power Co	Bad Creek No 2	I	R		266	1991
	Duke Power Co	Bad Creek No 3	I	R		266	1992
	Duke Power Co	Bad Creek No 4	I	R		266	1992
	Duke Power Co	Lincoln County No 01	I	G		72	1994
	Duke Power Co	Lincoln County No 02	I	G		72	1994
	Duke Power Co	Lincoln County No 03	I	G		72	1994
	Duke Power Co	Lincoln County No 04	I	G		72	1994
	Duke Power Co	Lincoln County No 05	I	G		72	1994
	Duke Power Co	Lincoln County No 06	I	G		72	1994
	Duke Power Co	Lincoln County No 07	I	G		72	1994
	Duke Power Co	Lincoln County No 08	I	G		72	1994
	Duke Power Co	Lincoln County No 09	I	G		72	1994
	Duke Power Co	Lincoln County No 10	I	G		72	1994
	Duke Power Co	Lincoln County No 11	I	G		72	1994
	Duke Power Co	Lincoln County No 12	I	G		72	1994
	Duke Power Co	Lincoln County No 13	I	G		72	1995
	Duke Power Co	Lincoln County No 14	I	G		72	1995
	Duke Power Co	Lincoln County No 15	I	G		72	1995
	Duke Power Co	Lincoln County No 16	I	G		72	1995
	Florida Power Corp	Debary No 07	I	G		70	1992
	Florida Power Corp	Debary No 08	I	G		70	1992
	Florida Power Corp	Debary No 09	I	G		70	1992
	Florida Power Corp	Debary No 10	I	G		70	1992

Table 8 -- SCHEDULED ADDITIONS TO GENERATING CAPABILITY AS OF JANUARY 1, 1991 -- CONT'D

REGION		SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	MW NET EXP CAPABILITY	SKED YEAR OPERATION
SERC		Florida Power & Light Co	Fort Lauderdale #4A	I	GC		143	1993
		Florida Power & Light Co	Fort Lauderdale #4B	I	GC		143	1993
		Florida Power & Light Co	Fort Lauderdale #5A	I	GC		143	1993
		Florida Power & Light Co	Fort Lauderdale #5B	I	GC		143	1993
		Florida Power & Light Co	Martin CC 3A	I	GC		143	1994
		Florida Power & Light Co	Martin CC 3	I	TC		164	1994
		Florida Power & Light Co	Martin CC 3B	I	GC		143	1994
		Florida Power & Light Co	Martin CC 4A	I	GC		143	1995
		Florida Power & Light Co	Martin CC 4	I	TC		164	1995
		Florida Power & Light Co	Martin CC 4B	I	GC		143	1995
		Key West Florida	Stock Island No 1	M	D		10	1991
		Key West Florida	Stock Island No 2	M	D		10	1991
		Lakeland Florida	Larsen GT No 4	M	G		79	1992
		Old Dominion Electric Coop	Clover No 1	C	T	Coal	393	1994
	+	Old Dominion Electric Coop	Clover No 2	C	T	Coal	393	1995
		Orlando Florida	Indian River C	M	G		104	1992
		Orlando Florida	Indian River D	M	G		104	1992
		South Carolina Elec & Gas Co	Hagood GT No 1	I	G		93	1991
		South Carolina Pub Serv Authy	Cross No 1	SL	T	Coal	520	1995
		Tennessee Valley Authority	Bellefonte No 1	F	N		1,213	1997
		Tennessee Valley Authority	Bellefonte No 2	F	N		1,213	1999
		Tennessee Valley Authority	Watts Bar No 1	F	N		1,177	1992
		Tennessee Valley Authority	Watts Bar No 2	F	N		1,177	1995
		Vero Beach Florida	Vero Beach No 5	M	G		34	1992
		Virginia Electric & Power Co	Chesterfield No 8	I	T		58	1992
		Virginia Electric & Power Co	Chesterfield No 8	I	G		127	1992
53 Units		Virginia Electric & Power Co	Yorktown No 4	I	T		180	1992

Table 8 -- SCHEDULED ADDITIONS TO GENERATING CAPABILITY AS OF JANUARY 1, 1991 -- CONT'D

REGION		SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	MW NET EXP CAPABILITY	SKED YEAR OPERATION
MAIN		Wisconsin Electric Power Co	Paris GT No 1	I	G		75	1995
		Wisconsin Electric Power Co	Paris GT No 2	I	G		75	1995
		Wisconsin Electric Power Co	Paris GT No 3	I	G		75	1996
		Wisconsin Electric Power Co	Paris GT No 4	I	G		75	1995
		Wisconsin Electric Power Co	Watertown GT No 1	I	G		150	1993
		Wisconsin Electric Power Co	Watertown GT No 2	I	G		150	1994
		Wisconsin Electric Power Co	Watertown GT No 3	I	G		150	1995
		Wisconsin Electric Power Co	Watertown GT No 4	I	G		150	1996
		Wisconsin Power & Light Co	So Fond Du Lac No 2	I	G		86	1994
		Wisconsin Power & Light Co	So Fond Du Lac No 3	I	G		86	1994
		Wisconsin Power & Light Co	So Fond Du Lac No 4	I	G		86	1996
12 Units		Wisconsin Public Service Corp	So Fond Du Lac No 1	I	G		86	1993
SPP		Cushing Oklahoma	Muni Power Plant	M	D		6	1991
ERCOT		Brazos Electric Coop	Miller GT No 1	C	G		104	1994
		Brazos Electric Coop	Miller GT No 2	C	G		104	1994
		Houston Lighting & Power Co	Malakoff No 1	I	T	Coal	645	1996
		Houston Lighting & Power Co	Malakoff No 2	I	T	Coal	645	1998
		San Antonio Texas	J K Spruce No 1	M	T	Coal	498	1992
		Texas-New Mexico Power Co	TNP One No 2	I	T	Coal/Gas	144	1991
		TU Electric	Comanche Peak No 2	I	N		1,150	1993
		TU Electric	Forest Grove No 1	I	T	Coal	750	1999
	+	TU Electric	Twin Oak No 1	I	T	Coal	750	1995
10 Units	+	TU Electric	Twin Oak No 2	I	T	Coal	750	1996

Table 8 -- SCHEDULED ADDITIONS TO GENERATING CAPABILITY AS OF JANUARY 1, 1991 -- CONT'D

REGION		SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	MW NET EXP CAPABILITY	SKED YEAR OPERATION
MAPP		Interstate Power Company	Mason City No 1	I	G		30	1991
		Interstate Power Company	Mason City No 2	I	G		30	1991
		Iowa Southern Utilities Co	Grinnell GT No 2	I	G		22	1991
		Northern States Power Co	Unit No 1 SD	I	G		104	1994
		Northern States Power Co	Unit No 2 SD	I	G		104	1994
		Northern States Power Co	Wisconsin No 1	I	G		104	1995
		Northern States Power Co	Wisconsin No 2	I	G		104	1997
8 Units		Northern States Power Co	Wisconsin No 3	I	G		104	1997
WSCC		Anaheim California	Gas Turbine SS	M	G		50	1991
		California Dept of Water Resources	Devil Canyon No 3	SL	H		80	1992
		California Dept of Water Resources	Devil Canyon No 4	SL	H		80	1992
		Idaho Power Company	Milner No 1	I	H		49	1992
		Idaho Power Company	Milner No 2	I	H		13	1992
		Idaho Power Company	Swan Falls P1 Boise	I	H		16	1993
		Nevada Power Co	Clark No 09	I	TC		90	1993
		Nevada Power Co	Clark No 10	I	TC		90	1994
		Public Service Co of Colorado	Pawnee No 2	I	T	Coal	485	2008
		San Diego Gas & Electric Co	South Bay No 3	I	G		113	1999
		U S Bureau Of Reclamation	Hoover A3	F	H		115	1991
		U S Bureau Of Reclamation	Hoover A4	F	H		115	1991
		U S Bureau Of Reclamation	Hoover N8	F	H		130	1992
	+	Washington Pub Pwr Supply Sys	WPPSS No 3	SL	N		1,240	1999
15 Units	+	Washington Pub Pwr Supply Sys	WPPSS No 1	SL	N		1,250	1999
		TOTAL			153 Units		29,737 MW	

Part II: Orders and Shipments of Heavy Electric Power Equipment

Table 9 -- CAPACITIES OF VARIOUS TYPES OF HEAVY ELECTRIC POWER EQUIPMENT ORDERED BY U.S. ELECTRIC UTILITY SYSTEMS FROM DOMESTIC AND FOREIGN MANUFACTURERS

	1986	1987	1988	1989	1990
Electric Generating Units (1,000 kW and Larger)					
Steam Turbine-Generators, kW					
Conventional	-	220,400 (a)	860,600 (a)	579,000	1,021,794
Nuclear	-	-	-	-	-
Combustion Turbine-Generators, kW	751,800 (a)	824,500	1,571,300	4,816,000	4,191,500
Diesel Engine-Generators, kW	later	later	later	later	3,155 (a)
Generators for Hydraulic Turbines, kW	-	20,400	126,000	396,800	101,500
	751,800 (a)	1,065,300	2,557,900	5,791,800	5,317,949
Steam Generators, 1,000 Lb Steam Per Hour	9,775 (a)	-	250 (a)	4,100 (a)	12,790 (a)
Nuclear Power Reactors (50,000 kWe and Larger)	-	-	-	-	-
Hydraulic Turbines, Hp	77,200	-	145,600 (a)	59,300	76,910
Power Transformers, Mva (b)	79,662 (a)	78,233 (a)	82,502 (a)	88,180 (a)	75,660 (a)

(a) Does not include equipment on order with foreign manufacturers.
(b) Includes U.S. industrials.

Table 10 -- CAPACITIES OF VARIOUS TYPES OF HEAVY ELECTRIC POWER EQUIPMENT SHIPPED TO U.S. ELECTRIC UTILITY SYSTEMS BY DOMESTIC AND FOREIGN MANUFACTURERS

	1986	1987	1988	1989	1990
Electric Generating Units (1,000 kW and Larger)					
Steam Turbine-Generators, kW					
Conventional	1,107,780	576,000	706,600 (a)	241,700 (a)	2,051,526 (a)
Nuclear	-	-	-	-	-
Combustion Turbine-Generators, kW	24,800 (a)	713,200	1,053,500 (a)	750,400	2,149,300 (a)
Diesel Engine-Generators, kW	-	6,300 (a)	12,600 (a)	6,300 (a)	19,210 (a)
Generators for Hydraulic Turbines, kW	200,000	70,000	-	721,000	563,400
	1,332,580	1,365,500	1,772,700	1,719,400	4,783,436
Steam Generators, 1,000 Lb Steam Per Hour	9,130 (a)	-	4,961 (a)	29,700 (a)	6,375 (a)
Nuclear Power Reactors (b)	8,002,000 (a)	6,140,000 (a)	6,970,000 (a)	4,568,000 (a)	1,200,000 (a)
Hydraulic Turbines, Hp	235,000	59,200	18,600	134,320	1,427,100
Power Transformers, Mva (c)	73,724	65,660	75,878	80,615	63,832

(a) Does not include equipment from foreign manufacturers.
(b) In terms of attainment of full power operation, not shipment.
(c) Includes U.S. industrials.

Table 11 -- ORDERS AND SHIPMENTS OF ELECTRIC GENERATING EQUIPMENT STEAM, HYDRAULIC and COMBUSTION TURBINE UNITS* -- 1,000 kW and Larger**

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders
	1990	1991	1992 and Later		1990
U.S. Electric Utility Systems					
Units	35	17	68	85	46
kW	4,200,826	2,669,333	9,756,438	12,425,771	4,459,294
U.S. Industrials					
Units	100	84	20	104	103
kW	4,545,803	3,992,685	913,100	4,905,785	4,194,560
Exports from U.S.					
Units	15	23	49	72	51
kW	1,053,500	4,367,300	13,331,230	17,698,530	7,026,730
Total					
Units	150	124	137	261	200
kW	9,800,129	11,029,318	24,000,768	35,030,086	15,680,584

* Includes Steam Turbine-Generators for Nuclear Power Plants.

** Manufacturers' Ratings.

Table 12 -- ORDERS AND SHIPMENTS OF STEAM TURBINE-GENERATORS

1,000 kW and Larger

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders
	1990	1991	1992 and Later		1990
U.S. Electric Utility Systems					
Units	5	4	12	16	4
kW	2,051,526	1,563,433	4,489,738	6,053,171	931,794
U.S. Industrials					
Units	39	35	9	44	37
kW	1,341,703	1,236,085	441,100	1,677,185	1,033,360
Exports from U.S.					
Units	-	9	28	37	16
kW	-	3,135,100	9,915,230	13,050,330	3,602,330
Total					
Units	44	48	49	97	57
kW	3,393,229	5,934,618	14,846,068	20,780,686	5,567,484

Table 12A -- ORDERS AND SHIPMENTS OF CONVENTIONAL STEAM TURBINE-GENERATORS

1,000 kW and Larger (Included in Table 12)

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders
	1990	1991	1992 and Later		1990
U.S. Electric Utility Systems					
Units	5	4	12	16	4
kW	2,051,526	1,563,433	4,489,738	6,053,171	931,794
U.S. Industrials					
Units	39	35	9	44	37
kW	1,341,703	1,236,085	441,100	1,677,185	1,033,360
Exports from U.S.					
Units	-	9	23	32	16
kW	-	3,135,100	5,815,230	8,950,330	3,602,330
Total					
Units	44	48	44	92	57
kW	3,393,229	5,934,618	10,746,068	16,680,686	5,567,484
U.S. Electric Utility System Orders from Foreign Manufacturers (Imports)					
Units	-	3	1	4	1
kW	-	170,000	150,000	320,000	90,000
U.S. Industrial Orders from Foreign Manufacturers					
Units	5	21	3	24	16
kW	838,900	1,400,000	216,700	1,616,700	1,071,900

Table 12B -- ORDERS AND SHIPMENTS OF NUCLEAR STEAM TURBINE-GENERATORS

50,000 kWe and Larger (Included in Table 12)

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders 1990
	1990	1991	1992 and Later		
U.S. Electric Utility Systems					
Units	-	-	-	-	-
kW	-	-	-	-	-
U.S. Industrials					
Units	-	-	-	-	-
kW	-	-	-	-	-
Exports from U.S.					
Units	-	-	5	5	-
kW	-	-	4,100,000	4,100,000	-
Total					
Units	-	-	5	5	-
kW	-	-	4,100,000	4,100,000	-
U.S.Electric Utility System Orders from Foreign Manufacturers (Imports)					
Units	-	-	-	-	-
kW	-	-	-	-	-

Table 13 -- ORDERS AND SHIPMENTS OF GENERATORS FOR HYDRAULIC TURBINES*

1,000 kW and Larger

Customer	Shipped 1990	Shipment Schedule as of January 1, 1991: 1991	Shipment Schedule as of January 1, 1991: 1992 and Later	Total Scheduled for Shipment as of 1-1-91	New Orders 1990
U.S. Electric Utility Systems					
Units	-	-	-	-	-
kW	-	-	-	-	-
U.S. Industrials					
Units	-	-	-	-	-
kW	-	-	-	-	-
Exports from U.S.					
Units	-	-	-	-	-
kW	-	-	-	-	-
Total					
Units	-	-	-	-	-
kW	-	-	-	-	-
U.S.Electric Utility System Orders from Foreign Manufacturers (Imports)					
Units	2	7	2	9	4
kW	563,400	541,000	39,800	580,800	101,500
U.S. Industrial Orders from Foreign Manufacturers					
Units	3	-	-	-	-
kW	23,000	-	-	-	-

* Includes generators for pumped-storage plants.

Table 14 -- ORDERS AND SHIPMENTS OF CONVENTIONAL BOILERS -- 450 Psi and Higher*

Rated in Thousands of Pounds of Steam Per Hour

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders
	1990	1991	1992 and Later		1990
U.S. Electric Utility Systems					
Units	2	6	4	10	4
M Lb/Hr	6,375	23,206	14,815	38,021	12,790
U.S. Industrials					
Units	5	14	-	25	6
M Lb/Hr	2,614	6,851	-	15,411	5,112
Exports from U.S.					
Units	2	4	-	13	14
M Lb/Hr	5,019	9,440	-	27,414	27,974
Total					
Units	9	24	6	48	24
M Lb/Hr	14,008	39,497	32,037	80,846	45,876

* Psi = pounds per square inch (pressure)

Table 15 -- ORDERS AND SHIPMENTS OF HYDRAULIC TURBINES

5,000 Horsepower and Larger

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders
	1990	1991	1992 and Later		1990
U.S. Electric Utility Systems					
Units	4	11	2	13	6
Hp	1,380,000	219,900	31,760	251,660	53,100
U.S. Industrials					
Units	2	-	-	-	-
Hp	12,350	-	-	-	-
Exports from U.S.					
Units	-	2	17	19	4
Hp	-	288,000	3,153,000	3,441,000	576,000
Total					
Units	6	13	12	32	10
Hp	1,392,350	507,900	3,184,760	3,692,660	629,100
U.S.Electric Utility System Orders from Foreign Manufacturers (Imports)					
Units	1	1	1	2	1
Hp	47,100	12,200	23,810	36,010	23,810
U.S. Industrial Orders from Foreign Manufacturers					
Units	-	-	-	-	-
Hp	-	-	-	-	-

Table 16 -- ORDERS AND SHIPMENTS OF COMBUSTION TURBINE-GENERATORS

1,000 kW and Larger

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders
	1990	1991	1992 and Later		1990
U.S. Electric Utility Systems					
Units	30	13	56	69	42
kW	2,149,300	1,105,900	5,266,700	6,372,600	3,527,500
U.S. Industrials					
Units	61	49	11	60	66
kW	3,204,100	2,756,600	472,000	3,228,600	3,161,200
Exports from U.S.					
Units	15	14	21	35	35
kW	1,053,500	1,232,200	3,416,000	4,648,200	3,424,400
Total					
Units	106	76	88	164	143
kW	6,406,900	5,094,700	9,154,700	14,249,400	10,113,100
U.S.Electric Utility System Orders from Foreign Manufacturers (Imports)					
Units	-	5	13	18	8
kW	-	415,000	1,079,000	1,494,000	664,000
U.S. Industrial Orders from Foreign Manufacturers					
Units	2	2	1	3	2
kW	128,000	29,200	93,800	123,000	29,200

Table 17 -- ORDERS AND SHIPMENTS OF DIESEL ENGINE-GENERATORS

1,000 kW and Larger

Customer	Shipped	Shipment Schedule as of January 1, 1991		Total Scheduled for Shipment as of 1-1-91	New Orders 1990
	1990	1991	1992 and Later		
U.S. Electric Utility Systems					
Units	2	1	-	1	1
kW	19,210	3,155	-	3,155	3,155
U.S. Industrials					
Units	-	5	-	5	5
kW	-	11,816	-	11,816	11,816
Exports from U.S.					
Units	1	-	-	-	-
kW	4,280	-	-	-	-
Total					
Units	3	6	-	6	6
kW	23,490	14,971	-	14,971	14,971

Table 18 -- ORDERS FOR AND COMPLETION* OF NUCLEAR REACTORS

50,000 kWe and Larger

Customer	Completed	Completion Schedule as of January 1, 1991		Total Scheduled as of 1-1-91	New Orders 1990
	1990	1991	1992 and Later		
U.S. Electric Utility Systems					
Units	1	-	9	9	-
kWe	1,200,000	-	10,522,000	10,522,000	-
Exports from U.S.					
Units	1	-	7	7	-
kWe	654,000	-	7,086,000	7,086,000	-
Total					
Units	2	-	16	16	-
kWe	1,854,000	-	17,608,000	17,608,000	-

* Attainment of full power operation.

Table 19 -- 1990 SHIPMENTS OF ELECTRIC POWER GENERATING EQUIPMENT TO U.S. ELECTRIC UTILITY SYSTEMS, BY NERC REGION
(MW Nameplate Capacity)

Region	Conventional Steam Turbine Generators	Combustion Turbine-Generators	Diesel Engine-Generators	Generators for Hydro Turbines	Total
NPCC	80	195	–	–	275
MAAC	–	673	–	–	673
ECAR	–	84	–	–	84
SERC	75	1,006	19	563	1,663
MAIN	–	–	–	–	–
SPP	–	25	–	–	25
ERCOT	1,897	–	–	–	1,897
MAPP	–	153	–	–	153
WSCC	–	50	–	–	50
NERC U.S.	2,052	2,186	19	563	4,820

Table 20 -- SCHEDULED SHIPMENTS OF ELECTRIC POWER GENERATING EQUIPMENT TO U.S. ELECTRIC UTILITY SYSTEMS, BY NERC REGION AS OF JANUARY 1, 1991
(MW Nameplate Capacity)

Region	Conventional Steam Turbine Generators	Combustion Turbine-Generators	Diesel Engine-Generators	Generators for Hydro Turbines	Total
NPCC	170	620	–	–	790
MAAC	150	1,469	–	–	1,619
ECAR	1,157	960	–	–	2,117
SERC	1,356	2,885	–	–	4,241
MAIN	–	996	–	–	996
SPP	599	–	–	–	599
ERCOT	1,878	208	–	–	2,086
MAPP	–	520	3	–	523
WSCC	1,063	103	–	581	1,747
NERC U.S.	6,373	7,761	3	581	14,718

Table 21
1990 SHIPMENTS OF ELECTRIC GENERATING EQUIPMENT
TO U.S. INDUSTRIAL CUSTOMERS, BY STATE
(kW Nameplate Ratings)

State/Division	Steam Turbine–Generators	Combustion Turbine–Generators	Generators for Hydro Turbines	Total
Total United States	2,180,603	3,326,700	23,000	5,530,303
Maine	89,300	–	–	89,300
New Hampshire	–	–	–	–
Vermont	–	–	–	–
Massachusetts	–	25,400	–	25,400
Rhode Island	102,600	205,300	–	307,900
Connecticut	18,500	38,300	–	–
New England	210,400	269,000	–	479,400
New York	254,816	497,500	5,000	757,316
New Jersey	167,600	250,500	–	418,100
Pennsylvania	285,323	0	–	285,323
Middle Atlantic	707,739	748,000	5,000	1,460,739
Ohio	–	–	–	–
Indiana	–	–	–	–
Illinois	–	–	–	–
Michigan	15,600	21,000	–	36,600
Wisconsin	13,000	–	–	13,000
East North Central	28,600	21,000	–	49,600
Minnesota	–	–	–	–
Iowa	–	–	–	–
Missouri	–	–	–	–
North Dakota	–	–	–	–
South Dakota	–	–	–	–
Nebraska	–	–	–	–
Kansas	–	–	–	–
West North Central	–	–	–	–
Delaware	–	–	–	–
Maryland	–	–	–	–
District of Columbia	–	–	–	–
Virginia	87,000	83,000	–	170,000
West Virginia	95,000	–	–	95,000
North Carolina	8,800	–	–	8,800
South Carolina	59,200	–	–	59,200
Georgia	75,000	–	–	75,000
Florida	150,400	–	–	150,400
South Atlantic	475,400	83,000	–	558,400
Kentucky	–	–	–	–
Tennessee	–	–	–	–
Alabama	–	38,300	–	38,300
Mississippi	–	–	–	–
East South Central	–	38,300	–	38,300
Arkansas	79,000	–	–	79,000
Louisiana	–	158,300	–	158,300
Oklahoma	–	38,300	–	38,300
Texas	32,500	657,500	–	690,000
West South Central	111,500	854,100	–	965,600
Montana	–	–	–	–
Idaho	128,500	–	–	128,500
Wyoming	–	–	–	–
Colorado	–	–	–	–
New Mexico	–	–	–	–
Arizona	–	–	–	–
Utah	–	–	–	–
Nevada	28,000	250,500	–	278,500
Mountain	156,500	250,500	–	407,000
Washington	25,000	–	–	25,000
Oregon	–	–	–	–
California	125,464	408,000	–	533,464
Pacific	150,464	408,000	–	558,464
Alaska	–	78,900	–	78,900
Hawaii	–	–	–	–
Unknown	340,000	575,900	18,000	933,900
Alaska, Hawaii & Unk	340,000	654,800	18,000	1,012,800

Table 22
SCHEDULED SHIPMENTS OF ELECTRIC GENERATING EQUIPMENT
TO U.S. INDUSTRIAL CUSTOMERS, BY STATE
As of January 1, 1991
(kW Nameplate Ratings)

State/Division	Steam Turbine–Generators	Combustion Turbine–Generators	Diesel Engine–Generators	Total
Total United States	3,293,885	3,351,600	11,816	6,657,301
Maine	39,000	–	–	39,000
New Hampshire	5,000	–	–	5,000
Vermont	–	33,000	–	33,000
Massachusetts	32,000	104,000	–	136,000
Rhode Island	80,000	–	–	80,000
Connecticut	–	–	–	–
New England	156,000	137,000	–	293,000
New York	307,300	1,007,300	5,516	1,320,116
New Jersey	382,525	532,500	–	915,025
Pennsylvania	296,500	100,000	–	396,500
Middle Atlantic	986,325	1,639,800	5,516	2,631,641
Ohio	–	–	–	–
Indiana	–	–	–	–
Illinois	–	–	6,300	6,300
Michigan	176,700	–	–	176,700
Wisconsin	40,300	–	–	40,300
East North Central	217,000	–	6,300	223,300
Minnesota	–	–	–	–
Iowa	–	–	–	–
Missouri	–	–	–	–
North Dakota	50,000	–	–	50,000
South Dakota	–	–	–	–
Nebraska	–	–	–	–
Kansas	–	–	–	–
West North Central	50,000	–	–	50,000
Delaware	–	–	–	–
Maryland	84,700	–	–	84,700
District of Columbia	–	–	–	–
Virginia	638,500	724,000	–	1,362,500
West Virginia	162,000	–	–	162,000
North Carolina	21,960	–	–	21,960
South Carolina	–	–	–	–
Georgia	28,000	–	–	28,000
Florida	151,500	439,500	–	591,000
South Atlantic	1,086,660	1,163,500	–	2,250,160
Kentucky	–	–	–	–
Tennessee	–	–	–	–
Alabama	129,500	–	–	129,500
Mississippi	–	–	–	–
East South Central	129,500	–	–	129,500
Arkansas	–	–	–	–
Louisiana	–	–	–	–
Oklahoma	–	–	–	–
Texas	66,300	38,300	–	104,600
West South Central	66,300	38,300	–	104,600
Montana	–	–	–	–
Idaho	–	–	–	–
Wyoming	–	–	–	–
Colorado	–	29,200	–	29,200
New Mexico	–	–	–	–
Arizona	–	–	–	–
Utah	54,000	–	–	54,000
Nevada	–	150,000	–	150,000
Mountain	54,000	179,200	–	233,200
Washington	–	–	–	–
Oregon	–	–	–	–
California	267,300	193,800	–	461,100
Pacific	267,300	193,800	–	461,100
Alaska	–	–	–	–
Hawaii	214,000	–	–	214,000
Puerto Rico	66,800	–	–	66,800
Alaska, Hawaii & P.R.	280,800	–	–	280,800

Table 23 -- LEAD TIMES IN MONTHS FOR STEAM TURBINE-GENERATORS PLACED IN SERVICE FROM 1981 THROUGH 1990 BY U.S. ELECTRIC UTILITY SYSTEMS

(Crosstab of Units by kW Size Range by Range of Number of Months Between Order and Service Dates)

Range of Months	0 kW to 99,999	100,000 to 199,999	200,000 to 299,999	300,000 to 399,999	400,000 to 499,999	500,000 to 599,999	600,000 to 699,999	700,000 to 799,999	800,000 to 899,999	1,300,000 1,399,999	TOTALS
(1) 1 to 12											0
(2) 13 to 24	1	1									2
(3) 25 to 36	11	1									12
(4) 37 to 48	7	1	1								9
(5) 49 to 60	2		5	3	2	1	3				16
(6) 61 to 72		3	2	1	1	4	2		2		15
(7) 73 to 84				1	3	4	4				12
(8) 85 to 96			3	3	3	5			1		15
(9) 97 to 108		1		1	2	4	1	1	1		11
(10) 109 to 120					3		2	1	2		8
(11) 121 to 132		1			3	1	2	1		1	9
(12) 133 to 144				1	1		1	1	1		5
(13) 145 to 156						1	3	2	2		8
(14) 157 to 168											0
(15) 169 to 180					1				1		2
(16) 181 to 192										1	1
(17) 193 to 204			1			1	1				3
(18) 205 to 216							1				1
ALL	21	8	12	10	19	21	20	6	10	2	129

Table 24 -- LEAD TIMES IN MONTHS FOR COMBUSTION TURBINES PLACED IN SERVICE FROM 1981 THROUGH 1990 BY U.S. ELECTRIC UTILITY SYSTEMS

(Crosstab of Units by kW Size Range by Range of Number of Months Between Order and Service Dates)

	Range of Months	0 kW to 19,999	20,000 to 39,999	40,000 to 59,999	60,000 to 79,999	80,000 to 99,999	100,000 to 119,999	120,000 to 139,999	140,000 to 179,999	TOTALS
(1)	1 TO 6									0
"	7 TO 12	1	3		4	1				9
(2)	13 TO 18		6	1	6					13
"	19 TO 24		5	1	15	1	2		1	25
(3)	25 TO 36	1	2		4	1		3	1	12
(4)	37 TO 48		1							1
(5)	49 TO 60					3	1			4
(6)	61 TO 72				1					1
(7)	73 TO 84									0
(8)	85 TO 96									0
(9)	97 TO 108									0
(10)	109 TO 120			2						2
	ALL	2	17	4	30	6	3	3	2	67

Table 25 -- ORDERS AND SHIPMENTS OF POWER TRANSFORMERS, 501 kVA and Larger

Customer		Shipped	Shipment Schedule as of January 1, 1991							Total Scheduled for Shipment as of 1-1-91	New Orders
		1990	1991	1992	1993	1994	1995	1996	1997 and Later		1990
					501 to 10,000 kVA						
U.S. Electric Utility Systems and U.S. Industrials	Units	4,634	1,523	3	2	7	-	-	-	1,535	3,990
	MVA	12,659	5,463	28	18	50	-	-	-	5,559	11,912
Exports from U.S.	Units	167	172	-	-	-	-	-	-	172	150
	MVA	502	527	-	-	-	-	-	-	527	522
TOTAL	Units	4,801	1,695	3	2	7	-	-	-	1,707	4,140
	MVA	13,161	5,991	28	18	50	-	-	-	6,087	12,435
					10,001 to 30,000 kVA						
U.S. Electric Utility Systems and U.S. Industrials	Units	577	436	30	4	-	-	-	-	470	624
	MVA	14,921	9,124	634	140	-	-	-	-	9,898	15,975
Exports from U.S.	Units	4	2	3	-	-	-	-	-	5	6
	MVA	100	40	85	-	-	-	-	-	125	140
TOTAL	Units	581	438	33	4	-	-	-	-	475	630
	MVA	15,021	9,164	719	140	-	-	-	-	10,023	16,115
					30,001 to 100,000 kVA						
U.S. Electric Utility Systems and U.S. Industrials	Units	247	168	40	1	1	-	-	-	210	278
	MVA	14,606	8,724	2,026	60	60	-	-	-	10,869	17,609
Exports from U.S.	Units	-	-	-	-	-	-	-	-	-	-
	MVA	-	-	-	-	-	-	-	-	-	-
TOTAL	Units	247	168	40	1	1	-	-	-	210	278
	MVA	14,606	8,724	2,026	60	60	-	-	-	10,869	17,609
					100,001 kVA and Larger						
U.S. Electric Utility Systems and U.S. Industrials	Units	67	39	19	2	-	-	-	-	60	89
	MVA	21,645	12,002	4,714	440	-	-	-	-	17,156	30,164
Exports from U.S.	Units	1	-	-	-	-	-	-	-	-	-
	MVA	400	-	-	-	-	-	-	-	-	-
TOTAL	Units	68	39	19	2	-	-	-	-	60	89
	MVA	22,045	12,002	4,714	440	-	-	-	-	17,156	30,164
					Total (501 kVA and Larger)						
U.S. Electric Utility Systems and U.S. Industrials	Units	5,525	2,166	92	9	8	-	-	-	2,275	4,981
	MVA	63,832	35,314	7,401	658	110	-	-	-	43,483	75,660
Exports from U.S.	Units	172	174	3	-	-	-	-	-	177	156
	MVA	1,002	567	85	-	-	-	-	-	652	662
TOTAL	Units	5,697	2,340	95	9	8	-	-	-	2,452	5,137
	MVA	64,834	35,881	7,486	658	110	-	-	-	44,135	76,322

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ECAR
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ERCOT
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MAAC
Mid-Atlantic Area Council

MAIN
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